

WHAT IS CLAIMED IS:

1. An active test monitor for testing a gunner's ability to designate a pop-up target, near a control tower, with a given laser, at an impact point for a projectile seeking said designated target with a sensor for only the narrow band near infrared radiation from said given laser; comprising:

an upper section containing an array of four very sensitive offset detectors focused on the areas in front of, above, in back of, to the right of and to the left of said target within 100 meters of the target;

a lower section electronically coupled to said upper section containing,

an on-target detector for said near infrared radiation,

a video camera for detecting visible radiation as well as said near infrared radiation reflected by said target,

a computer to record and evaluate output data from all of said detectors; and,

a modulated transceiver with an antenna to receive test initiation pulses from said tower and transmit test data with evaluation to said tower.

2. An active test monitor according to Claim 1, further comprising:

an electrically fired pyrotechnic device, adjacent said target coupled to said computer, to emit light and smoke in response to a hit pulse; and

said computer having a first circuit means to generate a hit pulse in response to a favorable evaluation of said data.

3. An active test monitor according to Claim 2, wherein:

said computer includes a second circuit coupled between said computer and said target to generate a lower target pulse in response to said hit pulse and a raise target pulse in response to said test initiation pulse.

4. A training method for testing a gunner's ability to designate a target, near a control tower, with a given laser, at an impact point for a projectile seeking said designated target with a sensor for only the narrow band radiation from said given laser; comprising the steps of:

[A] placing a substantially two dimensional representation of the target on a mechanism that pops the target upward to a nearly vertical (with respect to the ground plane) position or downward to a nearly horizontal position in response to an electric signal from the tower;

[B] directing a first array of high sensitivity offset sensors for the narrow band radiation toward the target and an area of ground within at least 100 meters therefrom in response to a gunner's cue signal;

[C] directing a video camera and a second array of low sensitivity sensors for the narrow band radiation only toward the space occupied by the target, when in the nearly vertical position, in response to the same cue signal;

[D] loading a designation program into a first computer that defines output signal threshold levels of the sensors as a function of time for an ideal laser illumination of the area around the target and finally the target itself to avoid enemy detectors and to insure proper missile impact;

[E] transporting the gunner and given laser toward and within missile range of the target;

[F] generating the cue signal from the gunner to the tower to indicate a launch time for the missile;

[G] generating the signal from the tower to the target in response to the cue signal;

[H] feeding the actual sensor outputs to the first computer;

[I] generating a score, in the first computer, based on the actual sensor outputs as a function of time as compared to the required sensor outputs;

[J] computing the time of expected missile impact at the target from the launch time in the first computer;

[K] generating the electric signal in the control tower, if the score exceeds a preselected hit threshold;

5. A training method according to Claim 4, further comprising the steps of:

[L] generating an electric hit signal in the first computer if the electric signal of step [K] has been generated at the time of impact;

[M] transmitting the hit signal, if present, to the target raising/lowering mechanism to lower the target in the event that a hit is scored;

[N] transmitting the hit signal, if present, to a hit simulator in the form of an electrical squib, whereby the hit signal fires the squib to generate smoke and light signals visible for the subject and anyone in the control tower;

6. A training method according to Claim 5, further including the steps of:

[O] storing the output signal from the video camera, as well as the computed and actual sensor output values in a backup computer in the control tower;

[P] clearing the first computer for a new test; and

[Q] generating an electric signal to raise the target board if hit signals were generated in steps [K] and [L] resulting in lowering the target board in step [M].